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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,060	12/04/2001	Hyang Yul Kim	CU-2746 RJS	9194

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EXAMINER	
LANDAU, MATTHEW C	
ART UNIT	PAPER NUMBER
2815	

DATE MAILED: 02/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/005,060	KIM ET AL.	
	Examiner	Art Unit	
	Matthew Landau	2815	

-- Th MAILING DATE of this communication appears on the cover sh t with the correspond nc addr ss --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 04 December 2001 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. The drawings do not show a rubbing direction of the lower substrate corresponding to a direction of a noise field formed between the data bus line and the pixel/counter electrode and between the gate bus line and the pixel/counter electrode. Also, the drawings do not show the counter electrode having a shape of a box and the pixel electrode having a shape of a clamp, nor do they show the distance between the counter electrodes (only one counter electrode is shown). These features must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claim 1, the wherein clause renders the claim indefinite. It is unclear how the rubbing direction can correspond with a direction of a noise field formed between the data

bus line and the pixel/counter electrode *and* between the gate bus line and the pixel/counter electrode. According to the drawings, the direction of a noise field formed between the data bus line and the pixel/counter electrode is different than the direction of a noise field formed between the gate bus line and the pixel/counter electrodes. A single rubbing direction cannot correspond to two different directions. For the purposes of this Office Action, it is considered that the rubbing direction corresponds to one or the other direction. Furthermore, it is unclear from the claims how the gate and bus lines physically relate to each other and the structure of the device.

In regards to claims 2 and 3, the limitation "patterned to have a shape of a clamp" renders the claim indefinite. The drawings and the specification do not sufficiently show or describe to one of ordinary skill in the art what is meant by a clamp shape.

In regards to claim 6, there is insufficient antecedent basis for "the distance" and "the counter electrodes". Only one counter electrode has been defined by the claims. It is unclear what is meant by the limitation, "the distance". Does applicant intend to claim a distance between a counter electrode and a counter electrode of an adjacent pixel? Also, from which part of the counter electrode is the measurement taken?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 5, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US Pat. 6,088,078, hereinafter Kim).

In regards to claim 1, as best the examiner can ascertain the claimed invention, Figures 2 and 3 of Kim disclose a liquid crystal display device comprising: a lower substrate 20 and an upper substrate 40 confronting each other; a counter electrode 24 formed on the lower substrate; a pixel electrode 25 formed on the counter electrode with an insulating layer interposed (column 6, lines 9-13); a lower polarizing plate 35 and an upper polarizing plate 45 attached on respective outer sides of the lower and the upper substrates; a gate bus line 21; and a data bus line 22, wherein a rubbing direction r_1 of the lower substrate corresponds with a direction of noise field formed between the data bus line and the counter electrode. Note that it is inherent to have a noise field between the data bus line and the electrodes.

In regards to claim 5, Figures 2 and 3 of Kim disclose the rubbing direction r_1 of the lower substrate 20 is parallel to the gate bus line 21 and there is no black matrix of the upper substrate 40.

In regards to claim 10, Figure 3 of Kim discloses the upper substrate 40 has a rubbing direction r_2 anti-parallel to that of the lower substrate 20.

In regards to claim 11, Kim discloses the lower polarizing plate 35 has a polarizer axis corresponding with the rubbing direction r_1 of the lower substrate 20 (column 6, lines 35-44).

In regards to claim 12, Kim discloses the upper polarizing plate 45 has an analyzer axis perpendicular to the rubbing direction r_1 of the lower substrate 20 (column 6, lines 35-44).

6. Claims 1, 3, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Asada et al. (US Pat 5,745,207, hereinafter Asada).

In regards to claim 1, as best the examiner can ascertain the claimed invention, Figures 1 and 4 of Asada disclose a liquid crystal display device comprising: a lower substrate 11 and an upper substrate 10 confronting each other; a counter electrode 2 formed on the lower substrate; a pixel electrode 4 formed on the counter electrode with an insulating layer interposed (column 5, lines 28-56); a lower polarizing plate 14 and an upper polarizing plate 13 attached on respective outer sides of the lower and the upper substrates; a gate bus line 1; and a data bus line 3, wherein a rubbing direction A of the lower substrate corresponds with a direction of noise field formed between the gate bus line and the counter electrode. Note that it is inherent to have a noise field between the gate bus line and the electrodes.

In regards to claim 3, Figure 4 of Asada discloses the counter electrode 2 and the pixel electrode 4 are made of opaque metal (column 5, lines 28-56) and the counter electrode and the pixel electrode are respectively patterned to have a slant line shape and an inverse-slant line shape by sub-pixels, thereby having IPS mode.

In regards to claim 9, Figure 4 of Asada discloses the rubbing direction A of the lower substrate is perpendicular to the gate bus line and there is no black matrix of the upper substrate.

7. Claims 1,2, 5, and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Lee et al. (US Pat. 6,256,081, hereinafter Lee).

In regards to claim 1, as best the examiner can ascertain the claimed invention, Figures 2 and 3 of Lee disclose a liquid crystal display device comprising: a lower substrate 20 and an upper substrate 30 confronting each other; a counter electrode 23 formed on the lower substrate; a pixel electrode 27 formed on the counter electrode with an insulating layer interposed (column 8, lines 1-5); a lower polarizing plate 37 and an upper polarizing plate 39 attached on respective outer sides of the lower and the upper substrates; a gate bus line 21; and a data bus line 25, wherein a rubbing direction R_1 of the lower substrate corresponds with a direction of noise field formed between the data bus line and the counter electrode. Note that it is inherent to have a noise field between the data bus line and the electrodes.

In regards to claim 2, Figure 3 of Lee discloses the counter electrode 23 has a shape of a box made of a first ITO (column 7, lines 27-29) and the pixel electrode 27 is formed by patterning a second ITO (column 8, lines 1-5) to have a slant line shape and an inverse slant line shape by sub-pixels, thereby having FFS mode.

In regards to claim 5, Figures 2 and 3 of Lee disclose the rubbing direction R_1 of the lower substrate 20 is parallel to the gate bus line 21 and there is no black matrix of the upper substrate 30.

In regards to claim 10, Figure 2 of Lee discloses the upper substrate 30 has a rubbing direction R_2 anti-parallel to that of the lower substrate.

In regards to claim 11, Figure 2 of Lee discloses the lower polarizing plate 37 has a polarizer axis P corresponding with the rubbing direction R_1 of the lower substrate 20.

In regards to claim 12, Figure 2 of Lee discloses the upper polarizing plate 39 has an analyzer axis A perpendicular to the rubbing direction R_1 of the lower substrate 20.

8. Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Hiroshi.

In regards to claim 1, as best the examiner can ascertain the claimed invention, Figures 4 and 5 of Hiroshi disclose a liquid crystal display device comprising: a lower substrate 27 and an upper substrate 26 confronting each other; a counter electrode 49 formed on the lower substrate; a pixel electrode 48 formed on the counter electrode with an insulating layer 57 interposed; a lower polarizing plate 63 and an upper polarizing plate 64 attached on respective outer sides of the lower and the upper substrates; a gate bus line 41; and a data bus line 42, wherein a rubbing direction of the lower substrate corresponds with a direction of noise field formed between the gate bus line and the counter electrode (page 3, paragraph [0046]) . Note that it is inherent to have a noise field between the gate bus line and the electrodes.

In regards to claim 8, Figure 5 of Hiroshi discloses the rubbing direction of the lower substrate is perpendicular to the gate bus line 41 (page 3, paragraph [0046]), and the noise field is formed between the gate bus line and the counter electrode, and therefore, black matrix 51 of the upper substrate 26 is formed on the gate bus line to have the same width or smaller than that of the gate bus line (page 3, para. [0044]).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Ota et al. (US Pat. 6,198,464, hereinafter Ota).

In regards to claim 4 and 6, Figure 3 of Kim discloses the rubbing direction r1 of the lower substrate20 is parallel to the gate bus line 21. As best the examiner can ascertain the claimed invention, the difference between Kim and the claimed invention is a black matrix of the upper substrate is narrowly formed on the data bus line. Figure 1 of Ota discloses a black matrix 23 narrowly formed on signal (data) bus line 2, where in the black matrix has a width smaller than a distance between the counter electrodes, formed with the data bus line interposed. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Kim by including the black matrix of Ota for the purpose of improving contrast (column 8, lines 45-50).

Allowable Subject Matter

11. Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nishida et al. and Ohta et al. both disclose a liquid crystal display device with a rubbing direction corresponding to a direction of a noise field.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (703) 305-4396.

The examiner can normally be reached from 8:00 AM-4: 30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Matthew C. Landau

Examiner

January 24, 2003